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RESEARCH

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PROCESS OF DONATION AND TRANSPLANT OF ORGANS AND TISSUES: KNOWLEDGE OF NURSING, PSYCHOLOGY AND SOCIAL SERVICE ACADEMICS

Processo de doação e transplante de órgãos e tecidos: conhecimentos de acadêmicos de enfermagem, psicologia e serviço social

Proceso de donación y trasplante de órganos y tejidos: conocimiento de estudiantes universitarios de enfermería, psicología y servicio social

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ABSTRACT

Objective: Evaluate the knowledge of students of undergraduate courses in Nursing, Psychology and Social Work on the concept of Brain Death and aspects of the donation process and organs and tissues transplantation. **Method**: Field study, exploratory, descriptive and prospective, quantitative. The research was realize in a Private Higher Education Institution. We used 10 questions about the organ donation process and questions related to the profile of the sample. Participating in the study academics of Nursing, Psychology and Social Work. Descriptive and quantitative data analysis. **Results**: The study included 449 students. It was verified that the participants have knowledge about the process of donation and organ transplantation, but with gaps, which reverberate the importance of these future professionals to seek to deepen the knowledge on this subject. **Conclusion**: Emphasizes the importance of health professionals knowing the donation process and organ transplantation because that may contribute to the increased number of donations.
Descriptors: Nursing; Psychology; Social work; Tissue and organ procurement; Organ transplantation.

RESUMO

Objetivo: Avaliar o conhecimento de estudantes dos cursos de Graduação em Enfermagem, Psicologia e Serviço Social sobre o conceito de Morte Encefálica e aspectos do processo de doação e transplante de órgãos e tecidos. **Métodos**: Estudo de campo, exploratório, descritivo e prospectivo, quantitativo. Realizado em Instituição de Ensino Superior privada. Utilizou-se contendo 10 questões, sobre

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o processo de doação de órgãos e perguntas relacionadas ao perfil da amostra. Participaram do estudo, acadêmicos de Enfermagem, Psicologia e Serviço Social. Realizada análise descritiva e quantitativa dos dados. **Resultados**: Participaram do estudo 449 acadêmicos. Constatou-se que os participantes possuem conhecimento a respeito do processo de doação e transplante de órgãos, porém com lacunas, que reverberam a importância destes futuros profissionais buscarem aprofundar os saberes sobre esta temática. **Conclusão**: Ressalta-se a importância dos profissionais da área da saúde conhecerem o processo de doação e transplante podendo contribuir com o aumento do número de doações.
Descritores: Enfermagem; Psicologia; Serviço social; Obtenção de tecidos e Órgãos; Transplante de órgãos.

RESUMEN

Objetivo: Evaluar el conocimiento de estudiantes de las carreras de grado en Enfermería, Psicología y Servicio Social sobre el concepto de muerte encefálica y proceso de donación y trasplante de órganos y tejidos. **Métodos:** Estudio de campo, exploratorio, descriptivo y prospectivo, cuantitativo. Realizado en Institución de Enseñanza Superior privada. Se utilizó cuestionario con 10 preguntas, sobre el proceso de donación de órganos y preguntas relacionadas al perfil de la muestra. Participaron del estudio, académicos de Enfermería, Psicología y Servicio Social. **Resultados**: Participaron del estudio 449 académicos. Se constató que los participantes tienen conocimiento acerca de donación y trasplante de órganos, pero con lagunas, que reverberan la importancia de estos futuros profesionales buscar profundizar los saberes sobre esta temática. **Conclusión**: Se resalta la importancia de que los profesionales de salud conozcan el proceso de donación y trasplante de órganos con vistas a que puedan contribuir al aumento del número de donaciones.
Descriptores: Enfermería; Psicología; Servicio social; Obtención de tejidos y órganos; Trasplante de órganos.

INTRODUCTION

Transplantation is a type of treatment offered to patients with chronic diseases or with acute organ failure. For decades, it has become a reliable therapy, which makes it possible to improve quality of life, decrease morbidity, and better cost-effectiveness for health services.[1] This consists of replacing an organ or tissue of a sick person, called recipient, by a healthy organ or tissue, of a person identified as a donor. The organs may come from deceased donors, who must be diagnosed with Brain Death (BD) or living donors.[2]

Brazil is the second country in the world in the absolute number of transplants, and for this achievement to be cemented, the commitment of the Brazilian Ministry of Health, State governments and medical entities in the entire donation process is essential.[3] Likewise, for organ transplantation to increase significantly in the country, it is necessary to improve the four aspects that support the process: legislation, organization, education and financing.[4] Between January and September 2017, more than 6 thousand transplants were performed in Brazil, with kidney in larger number. Likewise, almost 84% of transplants came from deceased donor organs.[5]

Organ donation is the only possibility for carrying out the transplant and family authorization is essential for the process to occur. There are several reasons for refusal, but it is believed that for greater family acceptance, information programs are necessary, with adequate clarification of the population, from the manifestation of the option to be a donor, to how the process occurs from the organ harvesting to the implantation in the recipients.[6] According to the survey carried out annually by the Brazilian Organ Transplant Association, family non-authorization is the main cause of non-effective donation. In Brazil, in 2016, the family negative rate was 43%, this percentage represented 2,571 refusals from the 5,939 interviewed families.[7] In the same angle, a study carried out in the *São Paulo* State, showed that the reasons why families do not authorize donations are related to not understanding the BD diagnosis, religious issues and the unpreparedness of the professional who conducted the family interview.[8]

The insufficient number of donors confronts the high demand from patients waiting for transplantation. Several people wait for a long period for the compatible organ, and due to their precarious health, they end up dying before they even have the opportunity to replace the diseased organ with a healthy organ.[9] In the United Kingdom, for instance, one in six recipients who wait for heart, lung or liver, end up dying on the waiting list or have clinical deterioration before transplantation.[10]

Studies carried out by both Kocaay et al. and Kobus et al. address that health professionals can be the link between organ donation and transplantation.[11,12] In order for that to happen, the knowledge regarding all the steps that contemplate this process is extremely relevant, as this is complex, multifactorial and depends essentially on the family. Likewise, it is not uncommon to limit the information about the donation and transplantation process of these professionals, mainly to aspects related to EM and the criteria that involve the possibility of donation. Furthermore, Potenza and Babaie address that education programs for health undergraduates are important for professional training and society as a whole, as they can become multipliers, bringing knowledge to friends and family.[13,14] A survey conducted with nursing undergraduates, considered the knowledge of the organ donation process low, especially regarding aspects of BD diagnosis.[15] Bearing the aforesaid in mind, this study meant to assess the understanding of undergraduates from Nursing, Psychology and Social Work concerning the concept of BD, as well as the aspects of the donation and transplantation process of organs and tissues.

METHODS

It is an exploratory, descriptive, prospective and field research with a quantitative approach. This research was performed at a private Higher Education Institution from the *Rio Grande do Sul* State over the period from August to September 2015. There were included undergraduates over 18 years old who were enrolled in Nursing, Psychology, and Social Work graduation courses at the respective

Institution. The study's objectives were explained to such undergraduates, and those who agreed to participate were asked to read and sign the Informed Consent Form. Undergraduates who were on sick leave during the data collection period were excluded.

This study took place through the application of an instrument for collecting sociodemographic data to characterize the sample and through a questionnaire containing an open question and nine closed questions. The questionnaire included questions related to the BD diagnosis and the organ donation process.

The analysis was descriptive of the main study variables, composed of absolute numbers and percentages entered in an Excel spreadsheet. With data presentation using mean and standard deviation for continuous variables and tables of absolute and relative frequencies. The data were analyzed using the Statistical Package for the Social Sciences (SPSS), version 18.0, and presented using tables.

The research project was approved by the Research Ethics Committee from the Higher Education Institution where the study was performed, under the Legal Opinion No. 1.174.877 and followed the ethical precepts in research involving human beings, according to the Resolution No. 466/2012 from the National Health Council.[16]

RESULTS

Table 1 - Distribution of sociodemographic variables in a sample of 449 undergraduates enrolled in Nursing, Psychology and Social Work graduation courses.

Variables	Total n=449 (100)	Nursing n=197 (43.9)	Psychology n=183 (40.8)	Social Work n=69 (15.3)
	n (%)			
Gender				
Male	64 (14.3)	31 (15.5)	23 (12.8)	10 (14.5)
Female	385 (85.7)	166 (84.5)	160 (87.2)	59 (85.7)
Children				
Yes	130 (29.0)	62 (31.4)	45 (24.6)	23 (33.8)
No	319 (71.0)	135 (68.6)	138 (75.4)	46 (66.2)
Marital status				
Married	140 (31.1)	65 (32.8)	56 (30.4)	19 (27.9)
Single	309 (68.9)	132 (67.2)	127 (69.6)	50 (72.1)
Working in the health field				
Yes	204 (45.4)	137 (69.4)	45 (24.7)	22 (32.4)
No	245 (54.6)	60 (30.6)	138 (75.3)	47 (67.7)
Semester				
1st and 2nd (beginning)	84 (18.7)	32 (16.2)	30 (16.4)	22 (31.9)
3rd, 4th, 5th and 6th (middle)	226 (50.3)	93 (47.2)	93 (50.8)	40 (58.0)
7th, 8th, 9th and 10th (ending)	139 (31.0)	72 (36.5)	60 (32.8)	7 (10.1)

Source: The authors, 2018.

A total of 449 undergraduates were surveyed, 197 (43.9%) from the Nursing graduation course, 183 (40.8%) from Psychology, and 69 (15.3%) from Social Work. The average age of the participants was 28 years old, ranging from 18 to 38 years old. The other sociodemographic data of the studied sample are shown in **Table 1**.

Table 2 addresses the responses regarding the definition of the concept of BD. In this regard, there are five answer options, where the participant chose the most appropriate for the concept, in which the correct answer referred to the first option.

Table 2 - Absolute and relative distribution of the question addressing the concept of brain death.

Question	Total n=449 (100)	Nursin n=197 (43.9)	Psychology n=183 (40.8)	Social work n=69 (15.3)
What is Brain Death?				
Irreversible coma with no reflexes and apnea	215 (47.89)	121 (61.4)	74 (40.1)	20 (29.1)
Irreversible coma with the presence of reflexes and apnea	65 (14.47)	33 (16.8)	26 (14.3)	6 (8.7)
Reversible circulatory arrest with irreversible stopping of all brain functions	62 (13.81)	16 (8.1)	37 (20.3)	9 (13.0)
Reversible respiratory arrest with irreversible stopping of all brain functions	62 (13.81)	13 (6.6)	32 (17.6)	17 (24.6)
I do not know	45 (10.02)	14 (7.1)	14 (7.7)	17 (24.6)

Source: The authors, 2018.

The answers regarding the participants' understanding about the organs that can be donated after the BD diagnosis are described in **Table 3**. Concerning the tissues that can be donated after the BD, 427 (95.1%) of the total number of participants of the three graduation courses responded that corneas and skin can be donated. Furthermore, they replied that they cannot be donated after the referring diagnosis, since 363 (80.8%) bones, 149 (33.2%) skin, and 402 (89.5%) cartilages. With regard to the total sample, 99 (22%) responded that all organs and tissues can be donated after BD, 6 (1.3%) no organ or tissue, and 23 (5.1%) did not know how to respond. In regard to liver donation 97 (21.6%), pancreas 324 (72.2%), intestine 381 (84.6), stomach 403 (89.8%), bladder 408 (90.9%), participants believe that it cannot be donated after BD. Nevertheless, the participants answered that the heart 285 (63.5%), lung 155 (34.5%), and the kidneys 279 (62.1%) can be donated.

Table 3 - Absolute and relative distribution of the participants' answers addressing the organs that can be donated after brain death diagnosis.

Organs	Total n=449 (100)	Nursing n=197 (43.9)	Psychology n=183 (40.8)	Social work n=69 (15.3)
			n (%)	
Heart				
It can	285 (63.5)	145 (73.6)	97 (53.0)	43 (62.6)
It can not				
Corneas				
It can	301 (67%)	150 (76.1)	104 (56.8)	47 (68.1)
It can not				
Bone				
It can				
It can not	363 (80.8)	148 (75.1)	157 (85.8)	58 (84.1_
Lung				
It can	155 (34.5)	118 (59.9)		37 (53.6)
It can not	102 (22.7)		102 (55.7)	
Intestine				
It can				
It can not	381 (84.6)	171 (86.8)	151 (82.5)	59 (85.5)
Skin				
It can	126 (28)	126 (64)		
It can not	149 (33.2)		111 (60.7)	38 (55.1)
Cartilages				
It can				
It can not	402 (89.5)	178 (90.4)	162 (88.5)	62 (89.9)
Liver				
It can	157 (35.0)	122 (61.9)		35 (50.7)
It can not	97 (21.6)		97 (53.0)	

Organs	Total n=449 (100)	Nursing n=197 (43.9)	Psychology n=183 (40.8)	Social work n=69 (15.3)
	n (%)			
Stomach				
It can				
It can not	403 (89.8)	183 (92.9)	157 (85.8)	63 (91.3)
All organs				
It can	99 (22)	34 (17.3)	54 (29.3)	11 (15.9)
It can not				
No organ				
It can	6 (1.3)	0 (0)	4 (2.2)	2 (2.9)
It can not				
I do not know				
It can	23 (5.1)	6 (3)	11 (6.1)	6 (8.7)
It can not				
Kidney				
It can	279 (62.1)	141 (71.6)	96 (52.5)	42 (60.9)
It can not				
Pancreas				
It can				
It can not	324 (72.2)	134 (68.0)	139 (76.0)	51 (73.9)
Bladder				
It can				
It can not	408 (90.9)	180 (91.4)	163 (89.1)	65 (94.2)

Source: The authors, 2018.

Concerning the tissues that can be donated in life, 363 (80.8%) of the total participants answered that corneas cannot be donated. Regarding the bone marrow donation, 370 (82.4%) reported that they can donate in life. Nonetheless, 19 (4.2%) of the total sample studied reported that all organs and tissues can be donated in life, 3 (0.6%) none, and 2 (0.4%) did not know how to answer. Considering the total sample, 338 (75.3%) answered that the lungs cannot be donated in life, 435 (96.9%) heart, 408 (91.0%) pancreas, and 440 (98.0%) bladder. Furthermore, 263 (58.6%) replied that just like the liver, 413 (92%) the kidneys can be donated in life. In regard to the organs that can be donated in life, the responses of the participants are shown in **Table 4**.

Table 4 - Absolute and relative distribution of the participants' answers addressing the organs that can be donated in life.

Organs	Total n=449 (100)	Nursing n=197 (43.9)	Psychology n=183 (40.8)	Social work n=69 (15.3)
	n (%)			
Heart				
It can				
It can not	435 (96.9)	193 (98.0)	176 (96.2)	66 (95.7)
Lung				
It can				
It can not	338 (75.3)	155 (78.7)	136 (74.3)	47 (68.1)
Liver				
It can	263 (58.5)	122 (61.9)	100 (54.6)	41 (59.4)
It can not				
Kidney				
It can	413 (92.0)	182 (92.4)	166 (90.7)	65 (94.2)
It can not				

Organs	Total n=449 (100)	Nursing n=197 (43.9)	Psychology n=183 (40.8)	Social work n=69 (15.3)
	n (%)			
Pancreas				
It can				
It can not	408 (91.0)	184 (93.4)	168 (91.8)	56 (81.2)
Bladder				
It can				
It can not	440 (98.0)	194 (98.5)	179 (97.8)	67 (97.1)
Corneas				
It can				
It can not	363 (80.8)	158 (80.2)	153 (83.6)	52 (75.4)
Bone marrow				
It can	370 (82.4)	170 (86.3)	143 (78.1)	57 (82.6)
It can not				
All organs				
It can	19 (4.2)	9 (4.6)	8 (4.4)	2 (2.9)
It can not				
No organ				
It can	3 (0.6)	1 (0.5)	2 (1.1)	0 (0)
It can not				
I do not know				
It can	2 (0.4)	0 (0)	2 (1.1)	0 (0)
It can not				

Source: The authors, 2018.

DISCUSSION

The demographic data in the present study are similar to other studies that assess knowledge about the donation and transplantation process. Female participants accounted for 85.7% of the studied sample, which is similar to research carried out with undergraduates from the health field, where can also be found the rate of female graduates ranging from 60 to 88.[17] The current research showed an average age of 28 years old for undergraduates, virtually the same average of a study carried out by Radunz that evaluated the impact of an educational intervention with medical undergraduates, whose average age was 24 years old.[18] Under the same viewpoint, it is believed that, because they are mostly young students, almost 70% declared themselves single and having no children.

Concerning undergraduates who already work in the health area, those enrolled in the Nursing graduation course showed a rate of 70%, practically. Most nursing undergraduates already work in the health field because it is very common to have a technical nursing course and later join the Nursing graduation course. Renner et al. address that nurse technicians are dissatisfied when asked about working conditions, so it can be hypothesized that they end up entering the graduation course in search of better wages, without departing from nursing.[19] On the other hand, the majority of undergraduates in the Psychology and Social Work graduation courses in this research do not work in the health field.

Approximately 50% to 60% of the participants in this research were in the middle of their academic activities, in other words, between the third and sixth semesters of the respective graduation courses. Goz et al. assessed the knowledge about donation and transplantation of 651 undergraduates in the health field, where 58% were between the first and third year of graduation.[20] Another Asian study carried out with nursing undergraduates, which evaluated the knowledge and attitudes about the same theme of this study, the study period of the participants also predominated among the first 6 semesters, however, when associating the longest time of academic activity with knowledge, they identified a significant association.[21]

It was believed that there would be a difficulty for undergraduates in understanding BD, nevertheless, the results show that the percentage of correct answers is considerable, when analyzed separately for each course, since knowledge about the criteria of BD is still inadequately disseminated among undergraduates from various health graduation courses. Perhaps, the undergraduates from the

Nursing graduation course had a better success rate due to the majority already working in the health area. Nonetheless, when the knowledge about the concept of BD, in general, was verified, only 22.7% of the students answered the correct alternative. Similarly, a study carried out with 212 medical undergraduates, 33% correctly answered questions related to the concept of BD.[22] In Brazil, according to the criteria established by the Federal Medical Council, BD is characterized as an irreversible situation of all respiratory functions and circulatory or irreversible cessation of all brain functions, including the brainstem.[23] According to Santos and Massarollo, classically the definition of death was characterized by the definitive suspension of cardiac and respiratory functions, which generates ignorance and non-acceptance of BD, and results in resistance both from the population and among health professionals.[24] Not only students but health professionals, studies show that educational interventions are essential for better understanding of BD and better involvement of both students and professionals in the organ donation process.[25]

Based on the identified results, it can be seen that the participants in this research had little information regarding the donation of some organs such as: pancreas, intestine, bones, cartilages, and skin. It is believed that the lack of knowledge might come from the fact that these transplants occur intermittently, except for the skin, which is an alternative for patients with major burns. As an example, in the last decade only 5 bowel transplants were performed in Brazil.[7]

It is observed that in the three courses surveyed, the majority of participants believe that after BD it is not possible to donate: pancreas, intestine, bones, cartilages and skin. It is assumed that the lack of knowledge about tissue donation is due to the usual disclosure of the term Organ Donation, making the population sometimes assume that tissue cannot be donated. With regard to bowel donation, it is considered that the lack of knowledge of the participants may be related to the fact that currently no bowel transplant has been performed in any Brazilian institution, even though there are institutions and teams registered for this type of transplant. However, American researchers claim that, although the success rate of this type of transplant is relatively low, it is regularly performed in adult and pediatric patients suffering from intestinal insufficiency.[26] It also draws attention that 2.2% of Psychology and 2.9% of Social Work undergraduates have responded that no organ can be donated. It is assumed that such a response was selected due to the lack of knowledge regarding both the definition of BD and the process of organ donation and transplantation.

Still on the organs and tissues that can be donated after BD, they show that they have some ignorance, except for the donation of some organs that are not common in daily practice, for instance: bladder and stomach. In regard to stomach transplant, this procedure is not regulated by the Brazilian Ministry of Health and was performed only once in Brazil, in the *São Paulo* State. There are health undergraduates who know which organs and tissues can be donated, but many reports that they consider themselves to be poorly informed about the transplantation process. In the same perspective, these students believe that education programs and the insertion of the topic of transplantation in the curricula of universities are necessary to improve the understanding of the process.[27,28] It is noteworthy that 102 (22.7%) of the participants report that the lungs and 97 (21.6%) the liver cannot be donated. According to the Brazilian Transplant Registry in 2017, only 111 (99.10%) lung transplants and 1,927 (91.37%) liver transplants from deceased donors occurred in Brazil.[7]

It was assessed the participants' knowledge of the organs that can be donated while the donor is still alive. At the time eleven response options were presented and participants should indicate which organs are possible to donate. Overall, undergraduates from the three graduation courses answered the questions correctly. Regarding the possibility of donating part of the lungs during life, this is essentially little performed in Brazil, and pancreatic donation is possible, but this therapy is not performed in the national territory.[7,29] The percentage of participants thinking that it is possible to donate the heart in life draws attention. Even though it is represented by a low percentage, it is not justified, since the heart is a fundamental organ for human life and, even if it is assumed that there is a possible lack of knowledge about the function and importance of each organ, it is emphasized that the discipline of anatomy is offered in the initial semesters of all health graduation courses. Likewise, the question is why a percentage of undergraduates believe that all organs and tissues can be donated in life.

CONCLUSIONS

When analyzing the results of the three groups studied, it was noted that the investigated undergraduates have knowledge about the donation and transplantation process of organs and tissues, even if not in depth, and that nursing undergraduates held a higher number of correct answers. Hence, it was perceived the need for providing educational strategies and interventions by the educational institutions on this topic, aiming at a better comprehension, then making these future professionals be able to achieve better results of donations and, consequently, of transplants.

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